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ABSTRACT

Summary findings are presented on research about the impact of college in order to identify key issues related to understanding the lives of individual students. Five perspectives are offered: Bowen's outcomes and goals; Feldman and Newcomb's student personality, values, and beliefs; Pace's achievement testing; Astin's longitudinal studies; and Pascarella's cognitive development in social contexts. Theoretical and methodological issues are discussed that set the stage for introducing new ways of explaining the impact of college, and theoretical models are introduced that are influenced by the heuristic orientation of cognitive psychology (Cantor and Kihlstrom's social-cognitive personology theory, and Baron's personality and intelligence theory). It is concluded that the impact of college on students is mediated, influenced, or determined by interactions between diverse psychological processes. Depending on the theoretical orientation of the research, they have been labeled student involvement, openness to change, and quality of student effort. (LB)

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Psychological Models of the Impact of College on Students

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Introduction

Society's investment in learning is enormous; each individual student's investment in learning varies as a function of a complex array of personal and social factors. The aim of this focused review of the summary findings of research on the impact of college is to identify key issues related to understanding the lives of individual students.

A fanciful analogy might set the stage for an analysis of the contemporary scene in research on the impact of college. Imagine a large telescope sitting on a mountaintop, a typical binocular microscope resting on a laboratory table, and an electron microscope set in the basement of a university hospital. It is obvious that observations made by each scientific instrument will be collected for different reasons and will be orders of magnitude apart.

To add to this analogy, imagine that observations are made only through special tinted filters derived from a particular value or theoretical perspective. In this make-believe world we might choose between filters that were ground to reflect an economist's monetarist beliefs or a Keynesian view of economic development. In reviewing the diverse literatures that contribute to an examination of the impact of college on the lives of students, we will use this analogy to illuminate the author's view of reality.

This paper is organized into four major sections. The first presents five perspectives on the impact of college; research findings from each are selectively highlighted. The second consists of a brief discussion of theoretical and methodological issues that set the stage for introducing new ways of explaining the impact of college. The third introduces three theoretical models influenced by the heuristic orientation of cognitive psychology and offers new conceptual tools. The fourth focuses on issues that must be addressed if we are to study the impact of college on the lives of individual students.

I. Five Perspectives on the Impact of College on Students

Bowen's Outcomes and Goals

A grand overview of the intended outcomes of higher education was presented by Bowen in *Investment in Learning* (1977). As an economist he is interested in determining whether the resources invested in the total enterprise of higher education indeed are being used effectively. To answer this question he first had to formulate goals with enough breadth to capture the diverse character of American institutions of higher education.

In writing about his extensive catalogue of goals, Bowen comments, "Not all the goals are achieved in practice, and some of them may not even be achievable. Still others may function as ideals--ever to be approached but never to be achieved fully. The catalogue has a utopian quality about it. It appears as a compendium of all possible virtues and hopes. Higher education has limitations, and educators should not claim so much as to lose credibility" (p.54).

Bowen organizes his catalogue into goals for individual students and goals for society. The goals for individual students are further classified as (1) cognitive learning, (2) emotional and moral learning, and (3) practical competence. The four main goals for society, (1) advancement of knowledge, (2) discovery and encouragement of talent, (3) advancement of social welfare, and (4) avoidance of negative outcomes for society, he states may be achieved through education, through research and related activities, or through public services.

His catalogue makes it clear that any constructive goal, either for individuals or for society, can find a constituency somewhere in the higher education establishment.

From his study of the literature--and from his perspective--Bowen identifies two goals for emotional and moral development that colleges are meeting: personal self-discovery and human sympathy toward groups in the abstract. The college experience does not, however, alter students' sympathy towards individuals. He concludes, "Though impressive, these conclusions do not add up to a resounding affirmation of the positive impact of college upon the emotional and moral development of its students" (p. 134).

The nature of the research, the discrete observations seen through different lenses, deal, according to Bowen, "mostly with particular aspects of personality, one at a time. Because they are expressed in averages that obscure wide variations among persons, they do not make contact with whole human beings. One has the sense that it would be possible to go on and on, adding new statistics of this kind and refining the old, without ever knowing what really happens to PEOPLE who go to college" (p. 135).

Feldman and Newcomb's Student Personality, Values, and Beliefs

The Impact of College on Students, Feldman and Newcomb's summary and critical analysis of empirical research in 1969, holds both historical and substantive interest. Nearly all of the research they reviewed was based on the underlying theoretical assumption that human characteristics could be identified and measured to classify individuals. This theoretical/methodological approach was recognized widely as trait theory; individual personality traits, attitudes, and value dispositions would lead to the development of separate measures, and clusters of these measures would be assembled into standardized test batteries. These tests usually were administered in large groups, with the students marking their true/false responses in the correct answer slot.

A battery of standardized tests was given first to an entering freshman class and repeated four years later as they completed their senior year. The impact of college was measured in terms of the change scores on the individual scales and measures. In the second section this assumption will be examined in greater detail, but first Feldman and Newcomb's general findings should be considered. Their organization of these research findings is still the basis for much of our present thinking about the impact of college on students.

Always mindful of methodological problems, they were able to identify changes characteristic of student experience in nearly all American colleges. "Most salient are increases in 'open-mindedness' (reflected by declining authoritarianism, dogmatism, and prejudice), decreasing conservatism in regard to public issues, and growing sensitivity to aesthetic and 'inner' experiences. In addition, a majority of the studies show a declining commitment to religion, increases in intellectual interests and capacities, and increases in independence, dominance, and confidence as well as in readiness to express impulses" (p. 48).

To deal with some of the difficulties associated with measuring mean differences between freshman and senior years, Feldman and Newcomb examined the impact of defined psychosocial environments. They found that "students pursuing different majors tend to have distinctive characteristics, in spite of many individual differences,...that differential experiences in the several major fields do have impacts beyond those attributable to initial selection into those fields... [and] that preexisting differences in characteristic typical of students initially choosing different curricula tend to become more pronounced following experience in those major fields" (p. 193).

Feldman and Newcomb hypothesize that this accentuation of student characteristics in part is the result of normative influences in a department in a large university. (They note that only large universities have academic departments large enough to form separate social groups.)

Residence groupings provide another psychosocial environment. "Although the phenomenon has been inadequately studied," they report, "the particular residential arrangements in which students locate themselves have ongoing impacts upon them quite apart from the effects of initial selection. In some cases, this takes the form of forces promoting attitude change on the part of certain members; in other cases, the reciprocal influences of members on one another reinforce and strengthen extant orientations" (p. 223).

In trying to understand the differential impact of college, Feldman and Newcomb state that "existing studies tend to show that the impact of college is greatest on those students who are ready to change either because they are psychologically open to new experiences or because they are open to the influence of others. Until proven otherwise, these two types of openness to change can be considered independent of each other. A student who is relatively open to the new and different may be either relatively open or closed to the influences of others--as may a student who is not particularly open to the new and different. The hypothesis--to be tested in future studies--is that the impact of college is greatest on students who are highly open to change in both ways, and smallest on those who are low on both characteristics. Students high on one of these variables but low on the other would be expected to fall in the middle in terms of impact" (p. 304).

Their "best guess" is that students are most affected by their college life when they "experience a continuing series of not too threatening discontinuities." A student from a small rural community, e.g., might be overwhelmed in a large city college and unable to assimilate available learning experiences. Regardless of the starting point or the current status of the student, Feldman and Newcomb suggest a radical notion. They propose another important goal for colleges when they state that a college's objectives might include that of cultivating in their students a tolerance, or even a desire, for those discrepancies that can stimulate change and growth.

Pace's Achievement Testing

Measuring Outcomes of College (Pace, 1979) presents an overview of a half century of college achievement testing. In summary Pace states,

> Comprehensive achievement tests, measuring students' information across broad fields of knowledge commonly included in college curricula, have existed for more than fifty years and have been widely used. They show that during the college years students learn a lot. Sophomores know more than freshmen. Seniors know more than sophomores. What they know is related to what they study and how much they studied it. They know more about subjects that are closely related to their major field than subjects less closely related to it. Nevertheless, their knowledge tends to increase from freshmen to senior year in all subjects, except highly specialized ones such as mathematics. (p. 36)

While Pace argues for the use of traditional achievement tests to demonstrate that students are indeed learning something in college, he also recommends new directions in the measurement of student achievement. He proposes (1) rethinking general education to include an emphasis on teaching "concepts that not only have had an important influence within [a] discipline, but have altered and enlarged man's view of himself and his institutions and the physical universe" (p. 43), (2) organizing test content around a set of major ideas and values, and (3) developing measures that "integrate knowledge, attitude, and action within the individual and with respect to major objectives of general education" (p. 42).

In proposing new directions he is grappling with the realities of contemporary higher education. The increasing specialization of academic disciplines leads to the seemingly inevitable consequence that college courses must focus on specialized knowledge. In spite of the lofty goal statements published in college catalogues about the intended institutional goals of undergraduate education, the objectives of college are translated into the specific individual course requirements. It is rare that an institution evaluates its impact on individual students across a coherent spectrum of institutional objectives.

Pace recommends techniques for student assessment which, if adopted, would require institutions to reconsider their commitments to the broad integrative goals of general or liberal education. "In an age of specialization, perhaps the generally educated person is one who has at least some minimal awareness and understanding of the concepts that specialists have developed for organizing and interpreting the phenomena of their specialty" (p. 44). The specialists would have to communicate with the college population at large.

He further suggests "a new kind of achievement test [is one] that would be organized around major ideas and values, rather than around basic fields of knowledge or academic disciplines. There are major ideas and values about which general or liberal education is presumably concerned: the development of maturity in thinking about such ideas as liberty, justice, equality, responsibility, work, love, beauty, and so forth. So why not develop tests that try to find out what and how students think about such ideas and what meaning and range they attach to them?" (p. 44).

Pace's third recommendation would integrate Bowen's categories of major student goals. He argues "that many objectives of liberal education are phrased in a way that assumes an integration within the individual of knowledge, value, and behavior." To meet an objective such as, "To participate as an informed and responsible citizen and in accord with democratic ideals," probably would require a combination of *knowledge* about society and government with democratic *values* and "*participation* [italics added] in legitimate political processes" (p. 45).

Replacing the word, *impact*, with the more accurate term, *impress*, Pace presents a model for student development and college impress. The basic propositions of this model include that what happens to a student depends on her or his entering characteristics, the college events and experiences the student encounters, and the effort the student puts into learning and development.

He feels that future research must examine the interaction between knowledge (the primary aim of college courses and curricula) and personal development. Instead of isolating these aspects of student life, research is needed to explore how they might reinforce each other. "For the most part, researchers who have studied personality development during the college years and after, or who have measured changes in students' attitudes and values, have done just that and no more. And researchers who have studied students' acquisition of knowledge and intellectual skills have done just that and no more. Each by itself is major topic of inquiry. But we need to know more than we know about how they fit together" (p. 174).

Astin's Ongoing Longitudinal Studies

In *Four Critical Years*, Astin (1977) has written an interim report of his ongoing longitudinal study of college students. He draws on data derived collectively from studies involving some 200,000 students.

His data analyses determine clearly that students change in many ways after they enter college. Students "develop a more positive self-image as reflected in greater interpersonal and intellectual competence, and they develop more liberal political views and attitudes toward social issues. At the same time, they show less religiousness and altruism and show reduced interest in athletics, business, music, and status. Some of these attitudinal and personality changes are accompanied by parallel changes in behavior" (p. 212). These results overlap with Feldman and Newcomb's conclusions.

These are overall trends, but, Astin asks, are they directly attributable to college experience or to maturation? If college actually is changing students, college residents should be more altered than commuters, the highly involved more changed than the less involved, the four-year graduates less touched than the drop-outs. Maturation could account for changes if these differences do not occur or if older students change less than younger. Using these criteria, Astin found that "increased interpersonal self-esteem seems most dependent on college attendance. Increased intellectual self-esteem and liberalism and decreased business interest also appear to be primarily attributable to college. Decreased religiousness and increased hedonism seem to result from a mixture of college and maturational effects, whereas decreased need for status and reduced interest in music and athletics appear to be entirely maturational" (p. 212).

With his huge sample Astin can stratify a large group of students on one variable and examine the pattern of differences that emerge on a host of other variables. Some student changes, for example, appear to be gender-related.

Astin's findings about student involvement are particularly relevant to this review. He uses the construct of student involvement to provide an overview of different patterns of student development and finds that highly involved students tend to come from educated and relatively affluent families, that they obtain good grades in high school and high scores on college admissions tests, and are more likely to aspire to advanced degrees and to attend relatively selective institutions and that they tend to live on campus.

These highly involved students then were divided into three subgroups, students with high levels of *interpersonal*, *academic*, or *athletic* involvement to obtain the resulting patterns:

1. Students who show maximum interpersonal involvement frequently major in the humanities or the social sciences. They interact frequently with fellow students and faculty and tend to be verbally aggressive. This pattern of high interpersonal involvement is associated with larger personality and behavioral changes than any other pattern. They develop stronger musical and artistic interests, altruistic tendencies, and status needs. Those who interact frequently with the faculty tend to be highly satisfied with their undergraduate experience, whereas those who opt primarily for political involvement tend to be somewhat dissatisfied.

2. Students who devote much time and effort to academic pursuits report a high degree of satisfaction with their undergraduate experience. However, this involvement is also associated with a reduction in the behavioral and personality changes associated with the college experience; this is likely to be the result of a relative isolation from their peers. This isolation tends to increase for students majoring in Engineering. The most pronounced of these effects is on hedonism, which is substantially reduced by academic involvement.

3. Students who are active participants in college athletics are also likely to be relatively isolated from the main peer group; in a manner similar to those who are academically involved, this results in somewhat smaller personality and behavioral changes. As a group these athletically involved students show smaller increases in liberalism and smaller decreases in business interests when compared with the group of interpersonally involved students. However, this group tends to be more satisfied with their undergraduate experience. The effects of athletic involvement on what are described as hedonistic tendencies appears to be mixed: drinking increases and smoking decreases. (p. 240)

High levels of involvement, whether interpersonal, academic, or athletic, increased student chances of completing college, reaching career objectives, and being satisfied with undergraduate experience. Astin cautions that these patterns are stereotypes that few students match precisely. They serve to dramatize and highlight the differences in college student behavior and development.

Pascarella's Cognitive Development in Social Contexts

In Pascarella's literature review, "College Environmental Influences on Learning and Cognitive Development" (1985), he agrees with others in recognizing the substantial and consistent evidence that students know more when they leave college as seniors than when they entered as freshmen. He finds further evidence that "knowing more" goes beyond what is measured by standardized achievement tests and grade point averages; some students make substantial gains in complex thought processes such as critical thinking. Along with Astin, Pascarella points out that just because increases in learning and cognitive development occur during college does not mean they are caused by the college experience. The research designs used to assess the effect of college attendance on learning and cognitive development have been flawed--simple pre- and post-test designs, cross-sectional designs (i.e., studying changes in two different groups of students at different points in the undergraduate career cycle). They have ignored the sample distortion resulting from selective retention between freshman and senior years.

Do different postsecondary institutions influence learning and cognitive development differently? Pascarella found a meager six studies, conducted over twenty years, which indicate that when student inputs are controlled, different colleges influence basic knowledge similarly--at least as measured by standardized instruments such as the Graduate Record Examination. Institutional differences and student learning and cognitive development remain an open area for inquiry.

Pascarella suggests that conditional effects such as a student's gender, ethnicity, socioeconomic status, and personal learning styles have been ignored in studies of differential college impact. Differences between institutions may not have been found because each one influences a given student differently. "It is unlikely that all students will benefit equally from the same institution, program or instructional emphasis. Determining what kinds of institutional environments maximize learning and cognitive outcomes for specific types of students is a research issue sorely in need of attention" (p. 41).

In addition to including gender and psychosocial variables, Pascarella differentiates between direct and indirect sources of influence. While structural characteristics such as enrollment, student-faculty enrollment, number of books in the library, etc. may not influence college outcomes directly they may relate indirectly to student and faculty attitudes and behaviors. Intensity of student effort (Pace, 1979) Pascarella feels may be related to some of these indirect effects, as might Astin's findings about student involvement.

He advocates the use of causal modeling as a statistical tool and strategy for encouraging the researcher to think through the theoretical relationships between his or her variables and presents a general causal model for assessing the effects of differential college environments on student learning and cognitive development.

He also reports modest but clear evidence that social contexts, residential environments, and specific types of experiences within an institution may differentially effect learning.

II. Paradigm Shifts and Methodological Advances

To understand the current state of knowledge about the impact of college it is necessary to look from a historical perspective at the scholarly disciplines that have contributed to the development of this knowledge. The first section of this review has described research conducted within two broad areas of psychology, one encompassing personality characteristics, beliefs, attitudes, values, etc., and the other encompassing intellectual and cognitive function, academic achievement, learning, and instruction.

Research on the impact of college experience is shaped by and filtered through the perspective provided by the disciplines in which the investigators have been trained. While this seems obvious, what is less obvious is that a psychologist trained in personality research probably is unfamiliar with educational psychology--and vice versa.

Like the large mammal described by differently positioned blind men, this research is limited by discipline boundaries in the way problems are conceptualized and studied. Dealing with complex research problems in a narrowly defined discipline is difficult enough; few researchers have been eager to leave the research traditions they know to take on the unfamiliar. However, the thrust of the reported findings indicates there are complex interactions between what has been traditionally labeled the cognitive and affective domains of human behavior.

Some conceptual and methodological problems of the two areas will be discussed separately before considering how each area is moving in the direction of integrating important theoretical constructs from the other.

Much of the research on the impact of college on personality characteristics, attitudes, values, and beliefs used scales designed to measure differences between individuals on identified variables. Students might be characterized, for example, as open-minded, impulsive, esthetic, or achievement oriented. Within the context of trait theory an individual described as high in openmindedness or impulsiveness would be expected to behave in such a manner consistently in many different situations.

If a student scored low on openmindedness as a freshmen and scored high on the same scale as a senior, these researchers might report the finding that college experience increased openmindedness.

There are design problems with studies in this tradition, but a more fundamental flaw has been their failure to find significant relationships between these measured traits and actual behavior. Mischel (1968), among others, reviewed this research and found typical correlations on the order of .30 between the measured trait and the behavior considered to be an expression of the trait. These low relationships were consistent across a large number of studies.

More recently Mischel and Peake (1983) has summarized the impact of these and related findings. He concludes:

> Historically, a number of forces seemed to converge in the late 1960s that produced something of a paradigm crisis, an acute questioning of the assumptions, value, and limits of the traditional trait and psychodynamic orientations that had served for years as the fundamental assumptive structure both for personologists and clinicians.... It is worth noting that these dissatisfactions were multifaceted. They included such diverse complaints and charges as the limited utility of global dispositional approaches for the planning of specific, individual treatment programs; for the design of constructive social change; for the prediction of individual behavior in specific contexts; and for incisive, theoretically compelling analysis of the basic psychological processes underlying the individuals cognition, affect and behavior."
> (p. 233)

A similar dissatisfaction was increasing about the findings of many research studies examining the relationship between aptitude/achievement measures and educational outcomes. After a detailed analysis of the literature, Cronbach and Snow (1977) proposed methodological and theoretical approaches to some of the problems they found. They suggest the necessity of analyzing the *interaction* between an individual's measured characteristics, for example, of an aptitude test score with a condition of educational intervention. It is possible that students either high or low on a given dimension of aptitude would be less influenced by a particular educational intervention than students in the middle of the distribution on that dimension.

When we consider the number of relevant aptitude dimensions operating in a typical learning situation and the number of aptitude/treatment interactions influencing the outcome, we could be either appalled by or grateful to Cronbach and Snow. By highlighting the need to recognize the significant role of aptitude/treatment interactions in nearly every learning situation, they have made the researcher's job appallingly complex. By requiring our recognition of this complexity they set the stage for significant progress.

Cronbach and Snow clarify the challenges awaiting the researcher.

> To come to understand interactions it will be necessary ultimately to study events as they unfold in time. There is, first, the set of entering characteristics of the learner (ability, and trait A, and stereotypes of teachers, for example). There is second, the objectively observable treatment. This refers not to the "treatment variable" in the experimenter's mind, but to the signals actually delivered to the Ss. Third there "is the learner's perception" (of the teacher, of his likelihood of succeeding, of the rewards and penalties in prospect, etc.) and his concomitant emotional states. Fourth, comes the acts of the learner as he engages with his task, some of them directly observable and some internal events that can at best be inferred. The final set of events is represented in the 'dependent variables' of the experiment. Research to date has not tried to depict this panorama of events. All in all, despite the fascinating research to be recounted in these chapters, we have not yet truly begun to investigate the relations of personality to instruction. (p. 410)

By focusing on different bodies of research, both Mischel and Cronbach and Snow have made explicit the great complexity of human behavior. The narrow research traditions of pursuing either so-called personal characteristics or intellectual characteristics must begin to embrace each other. These authors, among others, have contributed to what is being called the "cognitive revolution" in psychology. The key element in this conceptual revolution is understanding an individual's active transaction/interaction with significant aspects of his or her environment. It will become clearer that to understand this interaction it will be necessary to study cognitive and affective variables simultaneously.

III. The Cognitive Revolution in Contemporary Personality Theory

Cantor and Kihlstrom's Social-Cognitive Personology Theory

Acknowledging Mischel's (1973) explicit statement of dynamic interactionism, Cantor and Kihlstrom in "Cognitive and Social Processes in Personality" (1982) present a framework for detailed understanding of the reciprocal relationship between cognitive processes and social behavior.

> Central to a dynamic interactionist's conception of personality are the cognitive-social determinants of individual behavior: the individual's behavior is heavily influenced by the social situation and the individual's cognitive construction and interpretation of the social experience. Consequently, we need to ask about the cognitive underpinnings of the interpersonal perception and the perception of social events and situations. In other words, it is necessary to creep into the head of the perceiver-actor and see what the world looks like--how it is constructed, remembered, causally analyzed, and reinterpreted after the fact. (p. 153)

Cantor and Kihlstrom present their approach as cognitive because it focuses on identifying and studying the interrelationships among the processes by which social information is acquired, organized, and used. Their cognitive-social approach is divided into four subareas which they claim to share with any aspiring theory of personality, "structure (the study of the elements of personality), dynamics (how structural elements interact with each other and with external factors), development (how structural features and dynamic interactions naturally arise), and change (how structural and dynamic factors can be altered by means of some intervention)" (p.144) encounters with situations.

This orientation is useful in conceptualizing the processes by and through which individuals negotiate and are changed by everyday interpersonal interactions. Of particular importance to the study of the impact of college, Cantor and Kihlstrom demystify the construct "self-concept" by terming it not different from other constructs. Self-concept then is "a structured set of features and attributes defining a category represented in semantic memory" (p. 163) and accessible to research. "The problem, then, is to find out just what attributes belong in self-concept, how that information is organized, and how the self-concept influences social-cognitive processes and interaction" (p. 163). Their interactive concept of cognitive-social personology provides a conceptual framework that can be applied to questions about the impact of college. Studies carried out within this framework should result in more complete and accurate explanation and prediction.

Baron's Personality and Intelligence Theory

In "Personality and Intelligence" Baron (1982) attempts to understand the relationship between these customarily separate areas of theory and research. He starts by defining thinking as the most essential expression of intelligence.

He draws from John Dewey in outlining a general normative (prescriptive) model of five phases of reflective thinking. He further suggests parameters governing the operation of each phase with rules for optimally setting these parameters. The five phases are:

1. Problem recognition--the main parameter, the tendency to recognize problems, should be set so as to maximize ultimate expected value.

2. Enumeration of possibilities--the selection of novel versus familiar possibilities is based on the cost (effort) and value of each.

3. Reasoning--possibilities are evaluated by search for, or recognition of, evidence for or against them,

4. Revision--the list of possibilities is revised on the basis of evidence, and

5. Evaluation--the current set of possibilities is evaluated to decide whether the process should continue.

He points out that people may tend to deviate from the optimum and, indeed, that some may be more prone to deviation. Normal levels of thinking are of greater concern than possible limits. "The present approach leads to a concern with propensities rather than capacities. Propensities, unlike capacities, are to some extent under voluntary control and thus more subject to influence through education. Propensities may be taken as cognitive styles...propensities [may be] affected by values, expectations, and habits which in turn are affected by emotions, and all of these factors must be considered when we try to change propensities or understand their origins" (p. 309).

Baron applies his five phases of reflective thinking to stage theories including Loevinger, Wessler, and Redmore's ego development (1970), Kohlberg's moral development (1970), and Perry's student development (1971). He argues that these stages are neither inevitable nor fixed in sequence but describe adult individual and developmental differences. The stages themselves may be accounted for "by changes in the phases of thinking" (which may be learned), "particularly the phases involving problem recognition, search for evidence and evaluation" (p. 329).

If level and type of reflective reasoning is inextricably connected with level of ego, moral, or student intellectual development, linking affect and cognition in research becomes more imperative.

IV. The Current Status of Thinking About Feeling

Isen (1984) approaches the relationship between affect and cognition from the opposite perspective from Baron. She concludes from her overview of this sometimes controversial literature that a growing body of empirical research indicates that affective states, mild or strong, positive or negative, may significantly influence thoughts, cognitive processing, and social behavior.

Traditionally human experience has been described by three realms, cognition, (e.g., thinking), conation (motivation or will, and action or behavior), and affect (emotion and feeling), yet contemporary psychology still has not reached consensus about either definitions or strategies for their study. Isen states that within research on affect neither the subject matter for study nor the strategies for investigation have been agreed upon.

To try to clarify this complex field she distinguishes between feeling and emotion. An emotion, such as anger, has a particular referent or is directed at a particular object which caused the anger, has sets of behaviors, such as glaring or shouting or hitting or insulting, associated with it" (p. 186). The more global and pervasive feeling state of irritability may accompany and outlast the emotion of anger. Irritability as a component of angry affect has neither specific targets nor specific behavioral impulses associated with it" (p. 186). Feeling states even may be induced without accompanying strong emotion; the feeling state is more pervasive and general; it is not specifically targeted.

These feeling states occur frequently in everyday life and because they are pervasive and general may strongly affect behavior and thought. "Clearly they are affective," she says, "but there is ... something about them that seems cognitive as well" (p. 186). They can occur both with and without the presence of strong emotion and arousal. While feelings, unlike strong emotion, do not interrupt thought or behavior, they have a pronounced effect. Their subtle influence and pervasiveness makes them especially important for study.

Affect, more often than not popularly thought of as negative, effects thought and behavior, although the results of positive feeling states is more consistent and predictable than those of negative feeling states. Isen reports research which indicates that

> ...people who feel good tend to have positive material more accessible in memory, tend to be more optimistic, tend to judge things to be a little better than usually, and tend to act accordingly--to be more friendly, open and giving. They also are likely to behave in ways that will help maintain their positive feeling states. They go about solving problems differently from those not in a positive affective state, using simplifying strategies and perhaps tending to organize material into broader units. (p. 197)

One of her major proposals is that positive feelings provide a retrieval cue for positive materials in memory. Thus the positive feeling influences the material or the aspects of the material that come into mind. "There is now considerable evidence that this is the case, and thus, it seems that affective state can function like a category name or other organizing unit to prime related cognitive material" (p. 192).

If a feeling state provides clues for information retrieval, she continues: "material in memory must be encoded according to how that material makes one feel, perhaps episodically, perhaps semantically, or perhaps both" (p. 218). Another possibility is that a positive feeling state increases access to a compatible cognitive category.

Conversely, she reports, cognitive actions, for example, "putting on a happy face," can influence emotional experience. "It remains for scientists to establish empirically whether feelings and cognitions can be separated, for example, in terms of their effects. In the meantime it is proving helpful to investigate the extent to which affective states may enjoy the same process mechanisms that have been discovered for cognition" (p. 217). And, she concludes, that for now it remains a puzzle.

The recognition of this conundrum of social, cognitive, and affective processes returns us to consideration of the impact of college on the lives of students.

V. The Power of Different Models in Understanding the Impact of College on Individual Students

One implication of the conclusions reached by the authors of the reviews discussed in the first section of this paper is that the impact of college on students is mediated, influenced, or determined by interactions between diverse psychological processes. Depending on the theoretical orientation of the investigator and the assessment instruments used, these processes have been given labels such as student involvement, openness to change, and quality of student effort.

While approaching the issues from different perspectives, these authors agree that the impact of college must be studied and understood as a function of the interaction between the student and his or her encounters with the varied demands and experiences of college life.

Constructs such as student involvement or quality of student effort are operationally defined by their measuring instruments and by the pattern of empirical findings associated with them; there has been no concerted effort to place them in the context of a larger psychological theory.

Pace and Pascarella, among others, have created explanatory models of college impact useful for descriptive analysis and the generation of hypotheses. An overview of two of their models will be held up to the requirements of a broad psychological theory.

Pace (1979) diagrams a model he titles, "Path for a Student Development and College Impress Model". Its four major components are: (1) student characteristics at entrance (e.g., knowledge, critical thinking skills, personal characteristics, etc.), (2) college experience and events (e.g., libraries, residence units, cultural facilities, faculty contacts, experience in writing, self-understanding, etc.), (3) effort and environment: amount, scope, and quality, of effort students invest in using facilities and opportunities (e.g., press of the college environment--academic-scholarly emphasis, nature of the relationships in the college environment with peers, faculty members, and other institutional staff), and (4) student and college impress as indicated by differences between criterion scores at entrance and exit, self-ratings of progress, benefits, satisfactions, etc.) (Figure 1, p. 126).

He has developed a measure, a checklist of activities, that provides an index of the quality of student effort in relation to each of the facilities and types of opportunities in his model. Students record their frequency of each activity during a current year by checking "never," occasionally," "often," or "very often."

Pace states he intended to focus on learning and development with this scale. He and his colleagues were "guided by concepts of learning that hold that some kinds of learning activity are at a higher cognitive level than others. Other scales were based on concepts of personality development. Personality develops as it encounters new experiences that require new modes of response. One does not grow without having something to grow on--some challenge, problem, or condition that stimulates new responses and perhaps new insight" (p. 130). He makes good intuitive sense, but his model does not address the definition of key interactions between the student and the most salient aspects of his environment, or determination of how these interactions, most likely in a cumulative and cybernetic fashion, produce development and change.

Pascarella (1985) moves closer in formulating responses to these questions. While his model of college impact is similar to Pace's, it employs the statistical procedure, causal modeling, and requires a theoretical analysis of the direct and indirect influences of student and environmental variables on particular criterion measures. Instead of focusing attention only on the accuracy of prediction, by requiring prediction and explanation of interrelationships causal modeling could yield explanations of, for example, how a student and her or his environment interact. A technical caveat remains that causal modeling relies on correlational and regression techniques and thus cannot provide direct evidence of causation.

By pointing out that the unit of analysis for studies relating to college impact can have on the student, the institution, or combinations of student and institutional variables, he clarifies the level of aggregation used in theory development and subsequent research. This review has been focused on understanding the impact of college on individual students. To achieve this objective it will be necessary to construct theories that will, for example, explain how student effort and student involvement, both complex processes, can be understood in the context of the life of an individual student. How do encounters with a faculty member or a peer or a new idea shape a student's level of involvement?

To understand individual behavior we must have conceptual tools that allow us to observe the observable and infer the non-observable. The cognitive revolution in psychology has focused attention on how individuals process different types of information. It provides a heuristic framework for the development of new conceptual tools in understanding human behavior by emphasizing cognitive social interactions, information processing, and affective/cognitive relationships. All these may be applied to help understand the impact of college on students.

Astin warned that the patterns of characteristics of highly involved students are only stereotypes of idealized models. He did not intend to explain individual student behavior. If we wish to create interventions which produce intended impacts on specific students then we need psychological theory to guide us.

Student involvement and the quality of student effort are good candidates for psychological investigation. A potential starting hypothesis is that degree of involvement and student choices about where to direct that involvement are functionally related to an individual's self-concept. Following Cantor and Kihlstrom we ask if dimensions of involvement are included in the attributes belonging to an individual's self-concept. It is likely that those students described by Astin as low in college related involvement have neither stored information nor formulations for plans for such involvement within their self-concepts. They do not have implicit or explicit rules governing such behavior.

An important line of research would be to investigate how schema related to involvement are acquired and how they vary among individuals. For example, schema for involvement must differ significantly between students with high academic involvement and those with high athletic involvement.

Baron's parameters and phases of reflective thinking might be applied to the self-concept courses. A student's high involvement in engineering courses, for example, might be a function of excellent skills in setting the right parameter for problem recognition dealing with the transmission of electronic signals. But the same student's self-concept in relationships with members of the opposite sex results in low involvement because he lacks the correct parameters for problem recognition in the transmission of human signals.

This hypothetical engineering student also might have a long history of tinkering with electronic gadgets and might have spent many happy and solitary hours honing these problem-solving skills. Positive feelings facilitate access to these particular problem solving skills while everyday relationships are linked with confusion and pain.

This example provides a glimpse of some of the factors impacting a college student. We know from the surveyed research that students are subject to many classes of impact in any four years of college. With the perspective provided by the points of view presented, we can continue our search for understanding.

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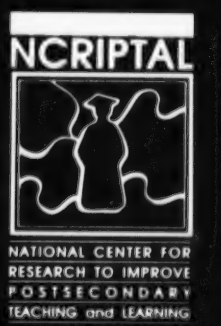
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